

# A dynamic online system for translation learning and testing

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**Abstract.** Translation is one of the items tested in many national English proficiency tests for non-English majors in China because translation competence is regarded as one of the productive language skills which could be used to assess learners' language proficiency. However, the feedback on translation exercises and self-tests are usually provided by human raters. As a result, students cannot have instant feedback after they finish their translation exercises or self-tests out of class, which would lead to the students' low motivation in practising translation by themselves. This paper reports on the process of the development of a dynamic online system with automated scoring and intelligent feedback for non-English majors' translation exercises and self-tests. It also discusses the obstacles encountered from a technical perspective.

**Keywords:** dynamic, online system, translation learning and testing, instant feedback.

## 1. Introduction

Generally, Chinese non-English majors are rather weak at translation, both from Chinese to English and English to Chinese. Due to limited time in class, teachers do not spend much time explaining translation techniques and analyzing students' translation errors. However, translation competence is required by the National English Syllabus for non-English majors. Therefore, there are two major national English tests for non-English majors in China in which students are required to participate, the National College English Test Band IV and the National College English Test Band VI. Both exams contain translation tests. Besides, the National Entrance Examination for Postgraduates also has translation items. Each year, millions of students participate in these exams. However, because of the lack of instant feedback, students do not practise translation adequately out of class. Consequently, they do not score high enough in translation.

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To motivate the students to practise translation out of class and to provide an online experiential learning (Kolb, 1984) environment, a dynamic online system for translation learning (English to Chinese and Chinese to English) and self-test of their translation competence has been designed. With this system, students can experience the translation tests and reflect on their translation errors with the aid of the automated scores and instant personal feedback provided by the system.

The concept of ‘dynamic’ means that a learner’s learning behaviors and achievements are constantly changing, which can be reflected by the learner’s multiple online behaviors, such as the time spent, the amount of exercises done, the frequencies to take the tests, and the scores obtained in the tests, etc. A dynamic online system is to capture the entire online behaviors of learners to help them improve their learning efficiency and achievements by providing them with adaptive exercises and tests to enhance self-directed use of technology (Lai, Shum, & Tian, 2016).

This paper reports on the development of such a system which is mainly composed of a scoring module and a feedback module. The scoring module, based on a machine learning approach, is capable of scoring students’ translations instantly after they submit their translations. The feedback module, supported by a learner English-Chinese translation error corpus and a learner Chinese-English translation error corpus, adopts the rule-based approach which can identify the translation errors of the learners and provide personal feedback. Hopefully, this system could motivate non-English majors to practise translation by themselves with interest and joy.

## **2. Method**

### **2.1. Construction of learner translation error corpora**

The learner Chinese-English translation error corpus is constructed in three steps.

The first step is to collect the raw data of learners’ translations. The online platform uses Wenjuanxing ([www.sojump.com](http://www.sojump.com)) which makes it possible for learners to do translation exercises online and for the teachers to download learners’ translations.

The Chinese-English translation materials used for the construction of the learner translation error corpora are the authentic Chinese-English translation items in the National College English Test and the model tests for this test. Each item is a short paragraph of 140 to 160 Chinese characters about Chinese culture, such as Chinese

holidays, Chinese cuisines, or Chinese tourist sites. The learners are asked to finish the tests online within 20 minutes.

The second step is to annotate learners' translations. The raw data were downloaded and annotated manually according to the criteria of annotation. After many experimental annotations, the errors were manually categorized by the postgraduates of Masters of Translation at Shanghai Jiao Tong University into 14 categories, such as improper dictions, improper collocations, and improper word order, etc. Besides, the corrections are also supplied so that the system can provide learners with the corrections as well as their scores. The construction of the learner English-Chinese translation error corpus follows the same steps as that of the construction of this corpus.

The third step is to transform these corpora into machine readable forms to enable the rating module and the feedback module to realize automated scoring and personalized feedback.

## **2.2. Development of automated scoring and feedback system**

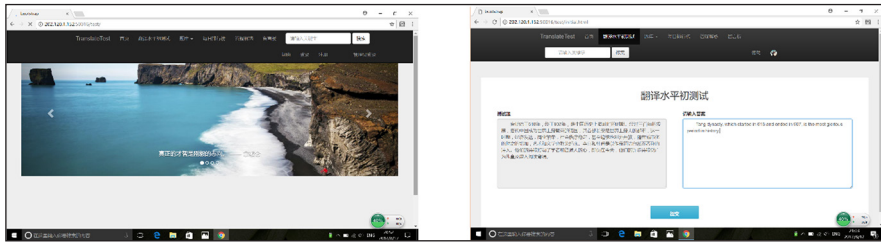
The dynamic online system for translation learning and testing should be able to track, store, and analyze the frequently changing data of learners. It should also be able to present the learners with the learning materials and tests based on the analyzed results of the data by the system. In other words, the system should be able to adapt to the dynamic state of learners' online learning and testing activities by providing them with the suitable materials and tests according to their dynamic translation scores.

The system is composed of a scoring system and a feedback system. The scoring system consists of a statistical-based scoring module which can score students' translations automatically and instantly after they submit their translations online. The feedback system, which is supported by the learner English-Chinese translation error corpus, the learner Chinese-English translation error corpus, and the standard translation database, is a rule-based module which can identify students' translation errors and provide personal feedback, such as the correct translations and the guidance for further learning.

## **2.3. Development of online platform**

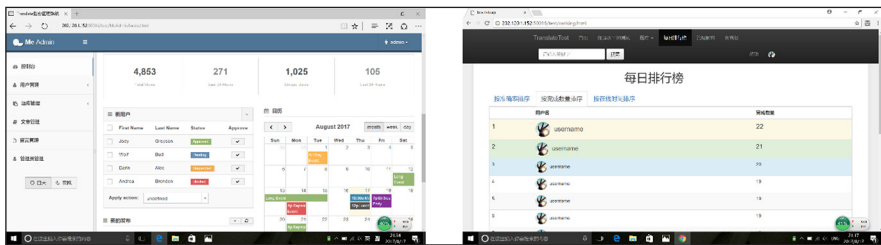
There are seven columns on the online platform (see [Figure 1 left](#)). A pretest of translation proficiency is the first test that students take (see [Figure 1 right](#)).

Figure 1. Left: homepage of the online platform. Right: interface of pretest of translation proficiency



Their online behaviors (see Figure 2 left) and daily ranking of peers (see Figure 2 right) can be presented to them.

Figure 2. Left: Students' online behaviors. Right: Daily ranking of peers



From the perspective of sociocultural theory (Lantolf & Thorne, 2007), peers could promote individual learning. Thus, the online platform is also designed to provide the rankings, the frequencies, and the progress of the peers who are taking the translation tests, hoping that peers' continuous progress can inspire learners to keep on doing the exercise and taking the test.

### 3. Discussion

Feedback plays a key role in the process of learning. Instant feedback is essential to online foreign language learning and testing. It is a necessity to make an attempt to provide online feedback on translation exercises and self-tests for students in the context of online learning.

Due to different language proficiencies and translation skills, learners make different progress when learning and testing translation (Angelelli & Jacobson,

2009). An online system to assist translation learning and testing should be able to track the differences and then adapt to the individual differences by providing personal feedback. In this sense, the word ‘dynamic’ is used to describe the system. A dynamic online system for translation learning and testing as a way forward is the solution to individual needs for translation learning and testing in the context of online learning. It should feature intelligence and individuality, making it possible to realize the learner-system interaction without intervention from the teachers.

This dynamic system is only a pilot project. Up to the present, enormous difficulties concerning natural language processing have emerged (Amaral, Meurers, & Ziai, 2011). For example, finding a good algorithm for the feedback module to determine the type of translation errors poses a great challenge. Besides, the heavy workload of manual annotation, which is very time consuming, is another great difficulty.

## 4. Conclusions

It is believed that it is hard to achieve efficient language learning without the aid of personal guidance. Currently, online learning and testing systems generally do not have instant feedback and personal guidance, especially when the testing items involve subjective items, such as translation. The dynamic online system for translation learning and testing is an attempt to provide instant scoring and instant feedback for non-English majors after they submit their translation exercises and self-tests online. It is also an attempt to provide them with personal guidance according to the translation errors analyzed by the system. Besides, it is capable of providing learners with the learning activities and achievements of their online peers to encourage them to continue their online learning and testing.

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